What is claimed is:

1. A method of controlling the transmission and reception of a frame in a network utilizing the CSMA/CD system comprising the steps of:

adding timing information as to the timing of transmitting a next frame from each terminal to a frame when said frame is transmitted from said each terminal onto a shared transmission line; and

estimating the timing of receiving a frame from other terminals on the basis of said timing information by said each terminal which is connected to said shared transmission line.

2. A method of controlling the transmission and reception of a frame according to Claim 1, further comprising the steps of:

reserving the estimated timing by said each terminal; and prohibiting a frame from being transmitted from said each terminal at the reserved timing.

3. A method of controlling the transmission and reception of a frame according to Claim 2, wherein said timing information for the next frame is disposed at the front portion of a preamble which is added to said frame and transmitted onto the shared transmission line.

4. A method of controlling the transmission and reception of a frame according to Claim 2, wherein when said network is a network in which data short of a prescribed size is transmitted with a carrier extension added thereto to satisfy said prescribed size, said timing information for the next frame is inserted into said carrier extension.

5. A method of controlling the transmission and reception of a frame according to Claim 1, further comprising the steps of:

dividing data into a former data having a prescribed size and a latter data when the size of said data is larger than said prescribed size;

determining said timing information for a latter frame containing said latter data on the basis of the time required for transmitting a former frame containing said former data: and

regarding said latter frame as a next frame and adding said timing information for said latter frame to said former frame.

6. A method of controlling the transmission and reception of a frame according to Claim 2, further comprising the steps of:

providing a timing reservation management table in each terminal;

reserving both said timing for receiving a frame from other terminals, and timing for transmitting a next frame from said each terminal in said table; and

transmitting a next frame onto said shared transmission line when said timing of transmitting said next frame from said each terminal comes.

7. A method of controlling the transmission and reception of a frame according to Claim 6, further comprising the steps of:

providing a timer which increments at certain intervals of time in each terminal;

using the time measured by said timer as an address; and

recording one selected from the group consisting of 'frame transmission by other terminals', 'frame transmission by its own terminal' and 'vacant' at the storage portion of said timing reservation management table which is indexed by said address.

8.   A method of controlling the transmission and reception of a frame according to Claim 7, further comprising the step of changing the unit of said increment of said timer in accordance with the type of said network.

9.   A LAN interface apparatus in a network utilizing the CSMA/CD system, comprising:

a transmitting timing information adding portion for adding timing information as to the timing of transmitting a next frame to a frame whereby said frame is transmitted onto a shared transmission line;

a timing extractor for extracting said timing information from a frame which is transmitted onto said shared transmission line from other terminal, and using the extracted timing as a timing of receiving said frame from said other terminal;

a timing reservation management table for reserving a timing of transmitting a next frame from its own terminal and a timing of receiving a frame from other terminal; and

a timing controller for prohibiting a frame from being transmitted from its own terminal at said timing of receiving a frame from other terminal, while allowing a frame to be transmitted from its own terminal onto said transmission line when said timing of transmitting a next frame comes by reference to said timing reservation management table.

10.   A LAN interface apparatus according to Claim 9, further comprising:

a buffer controller for queuing packets to be transmitted and outputting a predetermined packet when the transmission of said packet is instructed by said timing controller; and

a frame assembler for assembling said packet into a frame,

wherein said transmitting timing information adding portion

adds said timing information for the next frame to said frame which is output

from said frame assembler.

11.　A LAN interface apparatus according to Claim 10, wherein said

buffer controller divides a packet to be transmitted into a former packet having

a prescribed size and a latter packet when the size of said packet is larger than

said prescribed size, and queues said former and latter packets, and said

transmitting timing information adding portion determines said timing

information for a latter frame which is assembled by using said latter packet,

on the basis of the time required for transmitting a former frame which is

assembled by using said former packet, and regards the latter frame as a next

frame and adds the determined timing information to the former frame.

12.　A LAN interface apparatus according to Claim 9, further

comprising:

a timer which increments at certain intervals of time;

and

a table management portion for using the time measured by said timer

as an address, and recording one selected from the group consisting of 'frame

transmission by other terminals', 'frame transmission by its own terminal' and

'vacant' at the storage portion of said timing reservation management table

which is indexed by said address.

13.　A LAN interface apparatus according to Claim 12, further

comprising:

a means for detecting the transmission speed of said transmission line; and

a means for determining the unit of increment of said timer on the basis of said transmission speed.